11 FRACTURE MATCH

11.1 Introduction to Fracture Match

11.1.1 Objectives

Through completion of this module the trainee will have developed and demonstrated theoretical knowledge and/or practical skills to:

- Describe the difference between class and individual characteristics;
- Describe how a fracture match may be made and why it is considered conclusive that the two objects were at one time a part of the same unit;
- Document a positive fracture match; and,
- Write reports for positive fracture matches and negative fracture matches where additional testing has been or will be completed.

11.1.2 Required Readings

11.1.2.1 Dixon, K. C. "Positive Identification of Torn Burned Matches with Emphasis on Cross Cut and Torn Fiber Comparisons", Presentation: American Academy of Questioned Documents Examiners, August, 1982.

11.1.2.2 Funk, H. J. "Comparison of Paper Matches", *Journal of Forensic Sciences*, Vol. 13, No. 1, 1968, pp. 137-143.

11.1.2.3 Kirk, P.L., Crime Scene Investigation, 2nd ed. John Wiley and Sons: New York, 1974, pp. 113-116.

11.1.2.4 Saferstein, R., Ed., Forensic Science Handbook, Prentice-Hall, Inc., New York, NY, 1982, pp. 151, 547.

11.1.2.5 Saferstein, R., Criminalistics: An Introduction to Forensic Science, 5th ed., Prentice-Hall, Inc., Englewood Cliffs, NJ, 1977, pp. 61-71.

11.1.2.6 Van Hoven, H.A. and H. D. Fraysier, "The Matching of Automotive Paint Chips by Surface Striation Alignment", *Journal of Forensic Sciences*, Vol. 28, No. 2. 1983. pp. 463-67.

11.1.2.7 Von Bremen, U. G. and Blunt, L., "Physical Comparison of Plastic Garbage Bags and Sandwich Bags", *Journal of Forensic Sciences*, Vol. 28, No. 3, July, 1983, pp. 644-654.

11.1.2.9 Zugibe, F and J. Costello. "The Jigsaw Puzzle Identification of a Hit and Run Automobile", *Journal of Forensic Sciences*, Vol. 31, No.1. 1986, pp. 329-32.

11.1.3 Questions

The trainee will provide written answers to the following questions:

- What is a class characteristic?
- What is an individual characteristic?
- Is a fracture match considered to be a conclusive identification? Why?

11.1.4 Practical Exercises

11.1.4.1 The trainer will demonstrate a fracture match of a plastic automotive lens.

11.1.4.2 The trainee will be given test samples of plastic automotive lens and test samples of paint fragments and will be asked to fracture match the pieces, if possible.

11.1.4.3 The trainer will demonstrate a fracture match of a tape.

11.1.4.4 The trainee will be given test samples of a tape and will be asked to fracture match the pieces, if possible.

11.1.5 Evaluation

11.1.5.1 The trainer will review the written answers to the questions with the trainee.

11.1.5.2 The trainer and the trainee will review and discuss the pertinent points of each of the required readings.

11.1.5.3 Review of practical exercises.

11.2 Supervised Casework

The trainee will work as many forensic cases as are available during the training period as a technician for a qualified forensic examiner.

11.3 Forensic Significance of Fracture Matches

The trainer and the trainee will discuss the interpretation of fracture match evidence and its relevance and weight in reports and in testimony.

11.4 Report Writing

The trainer will review and discuss with the trainee the standard report wording in Section 7.6 of the Trace Evidence Standard Operating Procedures.

The trainer will provide five cases previously examined by other qualified forensic examiners for the trainee to review and discuss with the trainer.

The trainee will draft report wording as a part of the analysis of their training sets as well as when performing supervised casework.

Report writing will be evaluated throughout the training period by the trainer.

11.5 Competency Evaluation and Mock Trial

The trainee will complete at least one fracture match as a part of their subdiscipline competency test and will defend their results as a part of their mock trial in that subdiscipline.

11.6 Certification

There is no individual certification in fracture match.

11.7 Reading List

11.7.1 Dixon, K. C. “Positive Identification of Torn Burned Matches with Emphasis on Cross Cut and Torn Fiber Comparisons”, Presentation: American Academy of Questioned Documents Examiners, August, 1982.

11.7.2 Funk, H. J. “Comparison of Paper Matches” *Journal of Forensic Sciences*, Vol. 13, No. 1, 1968, pp. 137-143.

11.7.3 Kirk, P.L., Crime Scene Investigation, 2nd ed. John Wiley and Sons, NY, 1974.

11.7.4 Saferstein, R. Ed. Forensic Science Handbook, Prentice-Hall, Inc., New York, NY, 1982.

11.7.5 Saferstein, R., Criminalistics: An Introduction to Forensic Science, 5th Ed., Prentice-Hall, Inc., Englewood Cliffs, NJ, 1977.

11.7.6 Van Hoven, H.A. and H. D. Fraysier, "The Matching of Automotive Paint Chips by Surface Striation Alignment", *Journal of Forensic Sciences*, Vol. 28, No. 2. 1983, pp. 463-467.

11.7.7 Von Bremen, U. G. and L. Blunt. "Physical Comparison of Plastic Garbage Bags and Sandwich Bags". *Journal of Forensic Sciences*, Vol. 28, No. 3, July, 1983, pp. 644-654.

11.7.8 Zugibe, F and J. Costello. "The Jigsaw Puzzle Identification of a Hit and Run Automobile", *Journal of Forensic Sciences*, Vol. 31, No.1. 1986, pp. 329-32.

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